G08. Effect of elevated CO_2 on bacterial growth efficiency

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The rise of CO_2 levels in oceanic surface waters may have potential effect on marine bacteria although experimental results related to the effects of CO_2 on marine microbes are rather inconsistent and at times conflicting. In the present study, we investigated the effect of elevated CO_2 in seawater on bacterial production (BP), bacterial respiration (BR) and bacterial growth efficiency (BGE) at two different locations which are Port Klang and Port Dickson. A total of six sets of experiment were conducted for each location with different concentrations of CO_2 ranging from 2.95 to 99.35 μmol kg^{-1}. Estimation of bacterial production and bacterial respiration obtained ranged between 0.06 to 1.04 μM C h^{-1} and 0.18 to 2.72 μM O_2 h^{-1}, respectively. Bacterial growth efficiency was calculated as bacterial production/ (bacterial production + respiration) ranged from 0.08 to 0.54. CO_2 and bacterial growth efficiency were significantly correlated ($r = 0.277$, $df = 52$, $p < 0.05$). The results from this experiment suggest that an increase in atmospheric CO_2 might affect BGE, and may have implications towards understanding the ocean carbon flux.